



March 30, 2017

Jack Oman
Atlantic Richfield Company
4 Centerpointe Drive
La Palma, CA 92150-0577

Subject: Recommendations for Database Format Change for Quarterly
Yerington Stakeholder Data Delivery

Dear Jack:

Since fourth quarter 2012, the Atlantic Richfield Company (ARC) Yerington team has exported and delivered a Microsoft Access Database and Excel “flat file” to Yerington Stakeholders. As you know, in late 2016, ARC changed their primary Yerington environmental consultant from Brown and Caldwell to a team that includes Copper Environmental, Broadbent, AECOM and ddms. Coincident with this change, the team has migrated the ARC Yerington environmental database to a modern EQuIS-based system. This environmental database change from the legacy Brown and Caldwell EDMS database was initiated for the Yerington team to provide improvements in data quality, overall data workflow and report production. This letter is intended to communicate recommendations for changing the database format currently exported and delivered by ARC to Yerington Stakeholders with all Quarterly Groundwater Monitoring Reports.

- ☐ These recommendations do not include any changes to the previously agreed upon Excel flat file deliverable.
- ☐ The changes recommended for the database are structural only and would not change the data within in a substantive way.

As part of the migration to the EQuIS system, the ARC data team is reproducing needed exports and reports. In reviewing the potential reproduction of the quarterly Microsoft Access database deliverable discussed and agreed upon by Yerington Stakeholders at the August 14, 2012 “Anaconda Database Meeting”, ddms has concluded that it will not be possible to produce the exact same format. For this reason, ddms is recommending that the format of the past quarterly Microsoft Access Database deliverable change to an existing one that ddms has the ability to export to now. The proposed format is a non-proprietary schema developed by ddms and is free of need for special licensing (i.e., it is not the EQuIS schema and therefore does not require EarthSoft licensing). This new format also includes several technical enhancements that better align with modern environmental database management best practices.

To elaborate on the actual database changes, the legacy Brown and Caldwell quarterly format included tables that pertained to environmental measurements, analytical samples and results, locations, water levels and wells. The proposed ddms schema would include equivalent tables to support all of those data types (in addition to others). A relational diagram of the proposed schema is provided in the attachment “ddms7 Environmental Database Relational Diagram”. To minimize change on the part of Stakeholder end users, ddms proposes to recreate the Access “views” or queries to very closely approximate those that existed in the legacy Brown and Caldwell export.

Please feel free to contact me directly if you would like to further discuss and of the specifics that related to this proposed database format change.

Thank you for your consideration,

de maximis Data Management Solutions, Inc.

A handwritten signature in dark ink, appearing to read "M. Packard", written over a light gray grid background.

Mark Packard, CPG
Sr. Project Director

/mep

Attachments: ddms7 Environmental Database Relational Diagram

cc: Dennis Beckmann, Beckmann Environmental Consulting LLC (via email)
Rikka Bothun, ddms, inc. (via email)
Jessica Merkley, Copper Environmental (via email)
John Batchelder, EnviroSolve (via email)